National Science Foundation

FY2023 BUDGET REQUEST TO CONGRESS

FISCAL YEAR 2023 BUDGET HIGHLIGHTS

NSF's $10.5 billion FY 2023 Budget Request will:

- Make investments in the Administration's priorities of responding to the pandemic, tackling climate change, spurring economic recovery, innovating for equity, and ensuring national security and economic resilience.
- Drive NSF's vision of a nation that leads the world in science and engineering research and innovation to the benefit of all, without barriers to participation.
- Support continued focus on innovative and creative ways to expand existing collaborations and partnerships that result in new discoveries and impact, as well as expand fellowship programs dedicated to promoting equity in underserved communities.
- Ensure accessibility and inclusivity by increasing programs that support broadening participation, focus on research needed to advance understanding in climate change and clean energy, continues construction of forefront research infrastructure, and more.
- Fund strategic research, infrastructure and instrumentation investments. Bolsters the nation's global leadership in science and technology by building on efforts to develop a robust research security program.
- Position NSF to expedite technology development in emerging areas, with focused support for priority areas such as:

THE DIRECTORATE FOR TECHNOLOGY, INNOVATION, AND PARTNERSHIPS (TIP)
$879.87 million

ADVANCED MANUFACTURING
$421.51 million

ADVANCED WIRELESS
$168.56 million

ARTIFICIAL INTELLIGENCE
$734.41 million

BIOTECHNOLOGY
$392.26 million

MICROELECTRONICS AND SEMICONDUCTORS
$145.69 million

QUANTUM INFORMATION SCIENCE
$261.0 million

WHO WE ARE AND WHAT WE DO

Who We Are: The U.S. National Science Foundation is an $8.8 billion independent federal agency created by Congress in 1950. NSF is the only federal agency that supports research across all fields of science and engineering and STEM education at all levels. NSF invests in curiosity-driven, discovery-based explorations and use-inspired, solutions-focused innovations that spur new technologies, are critical to our economic and national security, and cultivate the diverse STEM workforce of tomorrow.

Mission: To promote the progress of science; to advance the national health, prosperity and welfare; to secure the national defense; and for other purposes.*

Vision: A nation that leads the world in science and engineering research and innovation, to the benefit of all, without barriers to participation.

** From the National Science Foundation (NSF) Act of 1950 (P.L. 81–507)*

What We Do: We are safer in our cars, on planes, in the cyberworld and everywhere we go because of NSF-funded research that has led to improved child safety seats, plane deicing, cyber security, weather radar and storm-resistant structures, to name a few. NSF keeps America on the leading edge of science and engineering by:

- Seeking high-risk, potentially transformative research projects that will generate path-breaking discoveries and new technologies.
- Building a diverse and inclusive STEM workforce capable of addressing society's most pressing challenges. Each year, NSF investments touch approximately 300,000 people from roughly 2,000 institutions in every state and territory.
- Funding advanced instrumentation, infrastructure and facilities.
- Supporting Arctic and Antarctic research and science operations.
- Increasing innovation at speed and scale through partnerships and building stronger bridges between discovery, innovation and commercialization.

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DRIVING RESULTS AND INNOVATION, BENEFITING SOCIETY

For more than 70 years, NSF has allowed the nation to harness ingenuity, foster innovation, and reap the benefits of the economic growth and progress that come with doing so. NSF investments in science, engineering and technology create high-tech, high-wage jobs that allow American workers to lead the global economy, improve the quality of life for all Americans and strengthen our national security. NSF investments:

- Spur innovation and robust job creation.
- Support students and a future-focused workforce through programs like CyberCorps® Scholarship for Service (SFS) and the Advanced Technological Education program.
- Lead to innovations that add billions of dollars to the U.S. economy through businesses and technologies.
- Provide understanding of all aspects of natural disasters by improving severe weather prediction, increasing resilience in housing and infrastructure, and responding to disasters.
- Enhance understanding of the biological, behavioral, social and environmental risks and implications of infectious disease.
- Take aggressive action to tackle climate change and invest in clean-energy research to increase energy efficiency and enhance sustainability.

NEW TIP DIRECTORATE

The new Technology, Innovation and Partnerships Directorate will be a critical first step to growing the economy and creating new jobs and strengthening and sustaining U.S. competitiveness for decades to come. TIP will be a game-changer in terms of the pace of technological breakthroughs, future job growth and national competitiveness. TIP was unveiled at SXSW, providing NSF the opportunity to share our vision for the future direction of American science and engineering with some of the innovators, entrepreneurs and technology giants that will play a key role in shaping this future. We look forward to Congress passing the "Bipartisan Innovation Act," which will be vital to reaching the goals of this new directorate. More information about TIP can be found at https://beta.nsf.gov/tip/latest.

WHERE IT COMES FROM FY 2023:

FY 2023 NSF Budget Request by Account:

$10.492 billion

(Dollars in Millions)

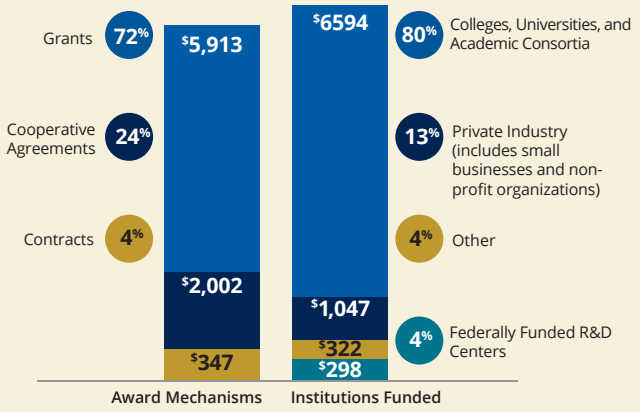
- 80% Research and Related Activities (R&RA) $8,426
- 13% Education and Human Resources (EHR) $1,377
- 2% Major Research Equipment and Facilities Construction (MREFC) $187
- 5% Agency Operations and Award Management (AOAM) $473
- <1% Office of Inspector General (OIG) $23
- <1% Office of the National Science Board (NSB) $5

Totals may not add due to rounding.

WHERE IT GOES AND HOW IT GETS THERE:

FY 2021 Obligations for Research and Education Programs:

$8,262 Million



NOTE: This chart shows the distribution of NSF's obligations by institution type and funding mechanism. While the data shown are based on FY 2021, the relative shares should provide a good indication of the FY 2023 distribution.
Notes: NSF Research and Education Programs include R&RA, EHR, and MREFC appropriations. Other institutions funded include federal, state, and local governments; and international organizations. Totals may not add due to rounding.
R&D - Research and Development

FY 2023 Budget Request: NSF Budget by Appropriation (Dollars in Millions)

Account	FY 2021 Actual[1]	FY 2021 ARP Actual[2]	FY 2022 Enacted	FY 2023 Request[1]	FY 2023 Request change over FY 2021 Actual		FY 2023 Request change over FY 2022 Enacted	
					Amount	Percent	Amount	Percent
Research and Related Activities	$6,761	$196	$7,159	$8,426	$1,665	25%	$1,267	18%
Education and Human Resources	$1,111	$24	$1,006	$1,377	$266	24%	$371	37%
Major Research Equipment and Facilities Construction	$161	$9	$249	$187	$26	16%	-$62	-25%
Agency Operations and Award Management	$385	$12	$400	$473	$89	23%	$73	18%
Office of Inspector General	$17	-	$19	$23	$6	36%	$4	23%
Office of the National Science Board	$4	-	$5	$5	$1	14%	$0	10%
Total, NSF	**$8,440**	**$240**	**$8,838**	**$10,492**	**$2,052**	**24%**	**$1,654**	**19%**

Totals may not add due to rounding.
[1] Funding re-stated for comparability in FY 2021 and FY 2023 to capture the requested consolidation of GRFP into EDU (formerly EHR). FY 2022 Enacted is not yet re-stated to capture this shift.
[2] This represents FY 2021 obligations of the $600 million provided by the American Rescue Plan Act of 2021 (P.L. 117-2).

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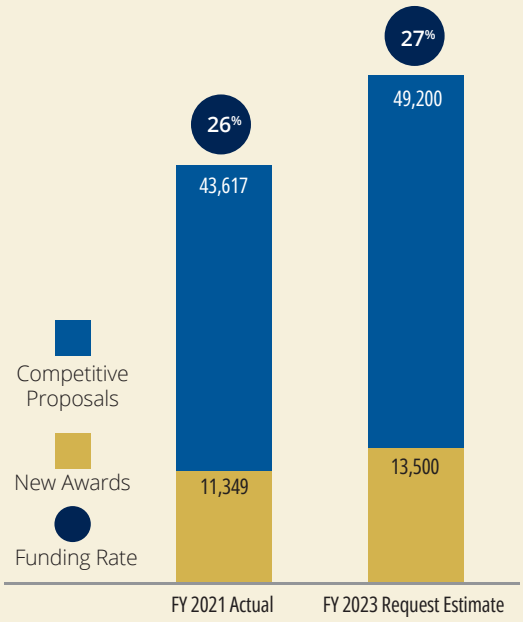
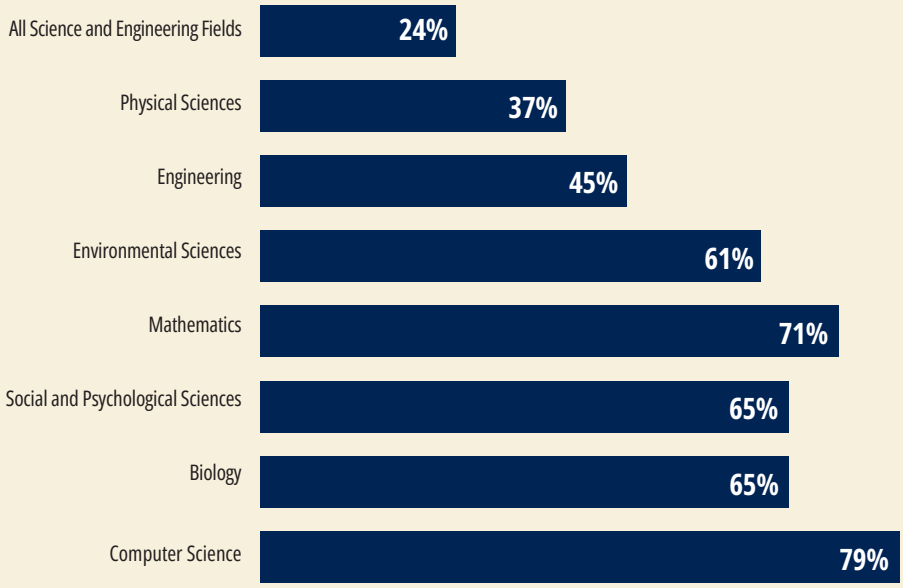
NUMBER OF NSF COMPETITIVE PROPOSALS, NEW AWARDS, AND FUNDING RATES



Note: The number of new awards is a subset of the total number of competitive proposals. Do not sum the competitive proposals and new award amounts.

NSF SUPPORT OF ACADEMIC BASIC RESEARCH IN SELECTED FIELDS

(as a percentage of total federal support)



Notes: Biology includes Biological Sciences and Environmental Biology. Biology and Psychological Sciences exclude National Institutes of Health funding from the total amount of federal support.
Source: NSF/National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, FY 2019

NSF BY THE NUMBERS

93% Funds research, education and related activities

$8.8B FY 2022 Enacted

43,600 Proposals evaluated

2,000 NSF-funded institutions

11,300 Number of awards NSF funds each year

318K People NSF supported

$1.5B STEM education

$181M* To seed public/private partnerships

253 NSF-funded Nobel Prize winners

Data represents FY 2021 Actuals unless otherwise indicated.
**Corresponds to NSF investments initiated in FY 2021 and spanning multiple years.*

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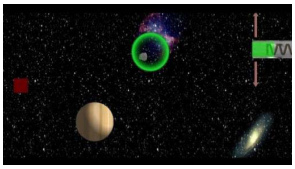
RESEARCH AND EDUCATION HIGHLIGHTS

American leadership in biotechnology: NSF's investment will include research and infrastructure in genomics, proteomics, synthetic biology, chemical biology, bioinformatics, computational biology, data analytics, structural biology, biophysics, and tissue engineering, as well as the development of new types of biomaterials, bio-probes, bio-based microelectronics, and biomanufacturing. In addition, NSF invests in educational programs that ensure a trained workforce to support U.S. capabilities in biotechnology, together with research on the ethical, legal, economic, and environmental consequences of synthetic biology and other biotechnologies. These investments contribute to public understanding of product adoption and socially responsible use.

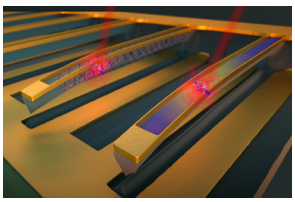
American leadership in AI: NSF will increase support for foundational research in AI, including machine learning and deep learning, natural language technologies, knowledge representation and reasoning, robotics, and computer vision, along with the fairness, accountability, transparency, explainability, safety, security, and robustness across all areas of AI. NSF will also support use-inspired research, education and workforce development, and access to data and advanced computing research infrastructure that collectively enhance AI. In addition, NSF will emphasize AI research, education and workforce development, and infrastructure activities at minority-serving institutions (MSIs).



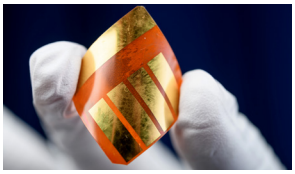
Informal STEM learning: NSF's investment in children's television programming is a key component of efforts to expand science learning beyond the classroom. The agency's support of TV shows such as "The Magic School Bus," "3-2-1 Contract," "Reading Rainbow," "Zoom" and "Bill Nye the Science Guy" -- along with museum exhibits, film, the internet and other educational outreach platforms -- helps spark interest in STEM education across diverse demographics and creates new pathways into scientific and research fields that will benefit society.

National Security: NSF will continue to foster a collaborative research environment that champions exploratory, curiosity-driven research. The agency invests in use-inspired innovative solutions that enable breakthroughs that protect communities, support veterans and warfighters, and enhance national security.

American leadership in advanced manufacturing: NSF investments will make producing next-generation products and services more efficient and sustainable and will lead to advantages such as less time to market, new performance attributes, cost and energy savings, and reduced environmental impacts. These investments will support advanced manufacturing research, future manufacturing research, workforce development, and transition to practice. NSF will invest in advanced manufacturing to increase future U.S. prosperity, as well as the nation's competitiveness, security and quality of life.



American leadership in quantum: Building upon more than three decades of exploratory discovery, NSF investment in quantum information science, or QIS, will help propel the nation forward as a leading developer of quantum technology. NSF's QIS investments build upon the agency's longstanding and continuing foundational investments in QIS as well as more recent, interdisciplinary investments in centers and small teams and targeted workforce development efforts. Investments will target all major areas of quantum computing, communications, sensing, networking, and simulation.



Administration priorities: NSF's themes support the priorities of the Administration, including investing in climate and clean energy research to support the focus on taking aggressive action to tackle climate change; building on existing programs and developing new ones to strengthen and scale equity investments and support underserved communities; and enhancing and expanding U.S. competitiveness through increased investments in emerging industries.

American leadership in biotechnology: Credit: Linnea Fletcher, Biotechnology Department, Austin Community College
American leadership in AI: Credit: NSF
Informal STEM learning: Credit: University of Illinois College of Education
National Security: Credit: NSF
American leadership in advanced manufacturing: Credit: NSF
American leadership in quantum: Credit: Second Bay Studios/Harvard SEAS
Administration priorities: Credit: Rob Felt/Georgia Tech